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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,008	09/30/2003	Gansha Wu	INT.P006	9513
45512	7590	07/27/2006	EXAMINER	
LAWRENCE CHO C/O PORTFOLIOIP P. O. BOX 52050 MINNEAPOLIS, MN 55402			WOOD, WILLIAM H	
			ART UNIT	PAPER NUMBER
			2193	

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/675,008	<b>Applicant(s)</b> WU ET AL.	
	<b>Examiner</b> William H. Wood	<b>Art Unit</b> 2193	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7, 11-14 and 18-21 is/are rejected.
- 7) ☒ Claim(s) 4-6, 8-10 and 15-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Claims 1-21 are pending and have been examined.

#### ***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-3, 7, 11-14 and 21 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims fail to provide a practical application in that they are abstract and not tangible. For example, claim 1 merely recites “determining”, “analyzing”, allocating” and “recover”, all of which are abstract concepts.
3. Claims 1-6 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are directed toward software per se, as there is no actual hardware implementation.

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States

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before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-3, 7, 11-14 and 18-21 are rejected under 35 U.S.C. 102(e) as being anticipated by **Schmidt** (US Publication 2004/0015920).

Claim 1

**Schmidt** disclosed a system, comprising:

an escape analysis module to (1) determine which objects of a program can be stack allocated under a closed-world assumption (*page 2, paragraph 0013, "one or more of its methods may create objects that may be placed on the method's invocation stack" and "During the compilation of the class, only the information relating to the previously-loaded classes is take into account", emphasis added; page 6, paragraph 0092, "performs escape analysis to determine whether to allocate an object on an invocation stack or on the heap*

*based on the available information”; closed world) and (2) analyze which stack allocation is invalidated due to an occurrence of an open-world feature (page 2, paragraph 0013, “dynamically compiled” and “After compilation, as each new class loaded, the class is analyzed to see if loading the class might change the analysis used to allocate object on the invocation stacks of previously-compiled methods”, emphasis added to demonstrate “open-world”);*

a stack allocation module to stack allocate the objects determined by the escape analysis module (page 2, paragraph 0013, “one or more of its methods may create objects that may be placed on the method’s invocation stack”); and

a stack allocation recovery module to recover invalidated stack allocations back to their original allocations in heap based on the analysis of the escape analysis module (page 6, paragraph 0092, last two sentences).

### Claim 2

**Schmidt** disclosed the system of claim 1, further comprising a main engine to, when the open-world feature occurs (page 2, paragraph 0013, “dynamically compiled by a just-in-time (JIT) compiler”), invoke (1) the escape analysis module to check which stack allocation is invalidated and to identify allocation sites of the invalidated stack allocations (as above under claim 1), and (2) the stack allocation recovery module to recover the invalidated stack allocations (as above under claim 1).

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Claim 3

**Schmidt** disclosed the system of claim 2, wherein the main engine, the escape analysis module, the stack allocation module, and the stack allocation recovery module are all part of a runtime environment (*page 2, paragraph 0013, “dynamically compiled by a just-in-time (JIT) compiler (as the program runs)”*).

Claim 7

The limitations of method claim 7 correspond to system claim 1 and as such are rejected in the same manner.

Claim 11

The limitations of method claim 11 correspond to system claim 3 and as such are rejected in the same manner.

Claim 12

**Schmidt** disclosed the method of claim 7, wherein analyzing which stack allocation is invalidated is performed when the open-world feature occurs (*page 2, paragraph 0013, “dynamically compiled” and “After compilation, as each new class loaded, the class is analyzed to see if loading the class might change the analysis used to allocate object on the invocation stacks of previously-compiled methods”, emphasis added to demonstrate “open-world”*).

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Claim 13

**Schmidt** disclosed the method of claim 7, wherein recovering those invalidated stack allocations is performed after analyzing which stack allocation is invalidated (*page 2, paragraph 0013, “dynamically compiled” and “After compilation, as each new class loaded, the class is analyzed to see if loading the class might change the analysis used to allocate object on the invocation stacks of previously-compiled methods”, emphasis added to demonstrate “open-world”; and page 6, paragraph 0092, last two sentences*).

Claim 14

The limitations of claim 14 correspond to system claim 1 and as such are rejected in the same manner.

Claims 18-19

The limitations of claims 18-19 correspond to method claims 12-13 and as such are rejected in the same manner.

Claim 20

The limitations of claim 20 correspond to system claim 3 and as such are rejected in the same manner.

Claim 21

**Schmidt** disclosed the machine-readable medium of claim 14, wherein the machine-readable medium is a memory within a computer system (*page 10, paragraph 0117, "floppy disks ... CD ROM"; figure 22*).

***Allowable Subject Matter***

6. Claims 4-6, 8-9 and 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims, 4, 8 and 15 recite suspending all threads along with patching and compensation publishing, limitations which do not appear in **Schmidt**. Additionally, claims 4-6 require correction of a 101 non-statutory issue.



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***Correspondence Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Wood whose telephone number is (571)-272-3736. The examiner can normally be reached 9:00am - 5:30pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (571)-272-3719. The fax phone numbers for the organization where this application or proceeding is assigned are (571)273-8300 for regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR systems, see <http://pair-direct.uspto.gov>. For questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.



William H. Wood  
Patent Examiner

AU 2193

July 18, 2006